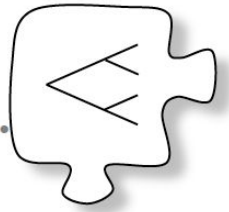
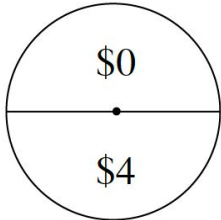


3.1.5 How much can I expect to win?



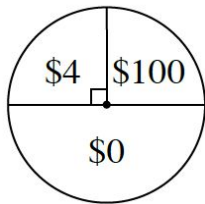
Expected Value

3-47 - Take a Spin - Team Discussion



- a) Discuss with your team: If you spin the wheel 10, 30, or 100 times, how much money would you expect to win? Why?
- b) If you play spin only once, what amount would you expect to win? Is it actually possible to win that amount? Why or why not?

3-48 Continue Spinning



- a) How much would you expect to win after 4 spins?

How much after 100 spins?

- b) Calculate the spinner's *expected value* or the expected winnings for each spin. Show your work.
- c) Write Gustavo's expression and calculate the answer.

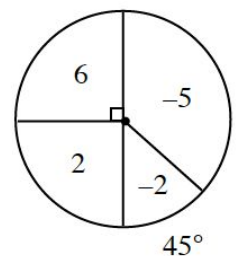
Expression:	Answer:
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Does his result match your result? If not, figure out why and explain.

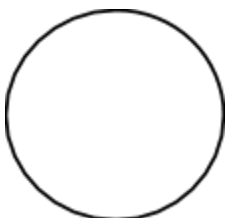
3-49

- b) Calculate the actual expected value.

Expression:	Answer:
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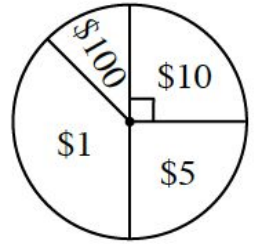
- c) What would the expected value be if this game were fair? Why?



- d) Draw a new fair spinner.

3-50 - Double Spin

- a) Use an area model or tree diagram to show the sample space and probability of each outcome of two spins.



- b) What is the expected value when playing this game if you can play the game for free?

Expression:	Answer:
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- c) If it costs \$3.00 for you to play this game one time, should you expect to break even in the long run?

- d) Is this game fair? Why or why not?

3-51 - More Basketball

- a) Use a model to represent the sample space. What is the most likely of the three possible outcomes?

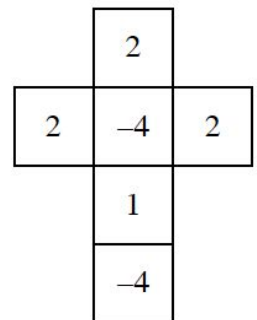
Most likely outcome?

- b) Is it more likely that Delilah would make no points or that she would score some points? Show your calculations.
- c) On average, how many points would you expect Dunkin' Delilah to make in a one-and-one free throw situation? That is, what is the expected value? Show your calculations.
- d) Repeat part (a) for at least three other possible free throw percentages, making a note of the most likely outcome for each one.

Calculations:	Calculations:	Calculations:
Percentage:	Percentage:	Percentage:
Points:	Points:	Points:

3-52

- a) What are the qualities of a fair game? What should the expected value be for a fair game?

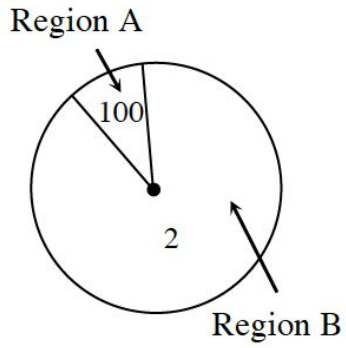


- b) What is the expected value of one roll of this dice? Is this dice fair?

Expression:	Answer:	Fair? Yes or No
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- c) Change only one side of the dice in order to make the expected value 0, to make the game fair. Circle the side to change in the diagram above, and write in the new number.

3-53



If central region A is 7° , calculate the expected value of one spin using two different methods. Show all work, and be ready to share your methods with the class.

3-54 - Reverse

Determine the value of x so that the expected value of the spinner is 3.

<p>a)</p>	<p>b)</p>	<p>c)</p>
<p>a) Calculations:</p>	<p>b) Calculations:</p>	<p>c) Calculations:</p>
<p>$x =$</p>	<p>$x =$</p>	<p>$x =$</p>